

WHAT IS CLAIMED IS:

1. A rotary tray apparatus in which a plurality of concave/convex portions are formed on a peripheral side wall of a rotary tray in correspondence with respective positions of a plurality of disk loading portions arranged on the rotary tray, and identification numbers of the respective disk loading portions at a play starting position is determined based on a pulse signal being output by a light receiver that receives a light emitted from a light emitter and reflected by the concave/convex portion, the apparatus comprising:

a counter configured to count, at a predetermined intervals, a numbers of L levels and H levels in one cycle of the pulse signal, respectively;

a detecting unit configured to detect whether or not a signal of an opposite level is input during the counting of respective levels;

a memory configured to store previously-input counted numbers of respective levels of the pulse signals as reference values; and

a controlling unit configured to determine the identification numbers based on a ratio between the numbers counted of the respective levels of the pulse signals,

wherein the controlling unit is further configured to compare a counted value of a time point when the opposite

level is detected with the reference values stored in the memory, and to decide that a noise signal is superposed in the pulse signal when the counted value is out of tolerances of the reference values and initialize the counted values.

2. A rotary tray apparatus in which a plurality of concave/convex portions are formed on a peripheral side wall of a rotary tray in correspondence with respective positions of a plurality of disk loading portions arranged on the rotary tray, and identification numbers of the respective disk loading portions at a play starting position is determined based on a pulse signal being output by a light receiver that receives a light emitted from a light emitter and reflected by the concave/convex portion, the apparatus comprising:

a counter configured to count, at a predetermined intervals, a numbers of L levels and H levels in one cycle of the pulse signal, respectively;

a detecting unit configured to detect whether or not a signal of an opposite level is input during the counting of respective levels;

a memory configured to store reference values for the counted numbers of respective levels of the pulse signals; and

a controlling unit configured to determine the

identification numbers based on a ratio between the numbers counted of the respective levels of the pulse signals,

wherein the controlling unit is further configured to compare a counted value of a time point when the opposite  
5 level is detected with the reference values stored in the memory, and to decide that a noise signal is superposed in the pulse signal when the counted value is out of tolerances of the reference values and initialize the counted values.

10 3. The rotary tray apparatus as claimed in claim 2, wherein the memory stores previously-input counted numbers of respective levels of the pulse signals as the reference values.

4. The rotary tray apparatus as claimed in claim 2,  
15 wherein the controlling unit is further configured to change the intervals in counting the numbers of respective levels by the counter in response to a rotation speed of the rotary tray.

5. The rotary tray apparatus as claimed in claim 2,  
20 wherein the controlling unit stops the determination of the identification numbers when a rotation speed of the rotary tray is slower than a predetermined speed.

6. The rotary tray apparatus as claimed in claim 2,  
wherein the controlling unit determines that the  
25 concave/convex portions has a defect, when a plurality of

the noise signal is detected on a same pulse signal at a time of determination of the identification numbers.

7. A method for determining identification numbers in a rotary tray apparatus in which a plurality of concave/convex portions are formed on a peripheral side wall of a rotary tray in correspondence with respective positions of a plurality of disk loading portions arranged on the rotary tray, and the identification numbers of the respective disk loading portions at a play starting position is determined based on a pulse signal being output by a light receiver that receives a light emitted from a light emitter and reflected by the concave/convex portion, the method comprising:

counting, at a predetermined intervals, a numbers of L levels and H levels in one cycle of the pulse signal, respectively;

detecting whether or not a signal of an opposite level is input during the counting of respective levels;

storing reference values for the counted numbers of respective levels of the pulse signals;

determining the identification numbers based on a ratio between the numbers counted of the respective levels of the pulse signals;

comparing a counted value of a time point when the opposite level is detected with the stored reference

values;

deciding that a noise signal is superposed in the pulse signal when the counted value is out of tolerances of the reference values; and

5       initializing the counted values.